NOVA SCOTIA FOREST TENURES

A Review of Stumpage, Forest Management and Market Access

Prepared For:

The Department of Lands and Forests
Province of Nova Scotia
Halifax

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November 4, 1987

Hon. Ken Streatch
Minister of Lands and Forests
7th Floor, Founders Square
1701 Hollis Street
Halifax, Nova Scotia
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Dear Mr. Streatch:

I have now concluded my report on Nova Scotia stumpage, forest renewal and market access for private forest owners. A final copy accompanies this letter.

Given the high level of interest in the subject matter, may I suggest that you have sufficient copies printed for general distribution. The report has been written with this in mind.

Finally, may I simply underline my belief that the forest sector in Nova Scotia is facing significant opportunities for expansion in the next decade. The recommendations in this report are designed to enhance these opportunities.

Sincerely,

F.L.C. Reed

FLCR/pdl
Encl.

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1.
INTRODUCTION

This study is part of the ongoing review of forest policies and practices in Nova Scotia. Its origin can be traced to the Royal Commission on Forestry instituted in late 1982 and completed in November 1984. Since that time the Province has followed up with a systematic exercise in policy formulation and legislation. These are based in turn on their acknowledgement that "a renewed and expanded forestry resource is a major priority".

The purpose of this study is to fulfill one of the Province's commitments contained in the 1986 statement, "Forestry - A New Policy for Nova Scotia". One part of their strategy requires the government to:

> "Review existing Crown land lease and license agreements to ensure that these are providing for
>
> - equitable stumpage rates
> - adequate investment in forest management, and
> - improved market access for privately produced wood."

The objective of this report is to examine each of these three issues, within the context outlined above. The analysis and recommendations are based primarily on discussions with private forest land owners, industry and the provincial government. The author has also drawn on earlier experience in the region, as well as on some comparisons of tenures and stumpage rates in other provinces.

Reference has also been made to Royal Commission briefs and to subsequent statements provided by interested parties. The ready availability of such recent material has reduced the need for detailed field work and made it possible to accommodate this review within a period of three months.

The next section sets the stage with a capsule summary of background information on Nova Scotia's forest land, selected industry trends and primary institutions. Chapters 3 and 4 deal in turn with Crown forest land tenures and private forest owners. The analysis is contained in Chapters 5, 6 and 7, which cover stumpage, forestry investment and market access in that order. Recommendations are grouped in Chapter 8.

There is a trend toward more widespread use of metric units of measure and this text favors their use. There are a few points where cords or other units will be used in conjunction with metric. A conversion table is included in the Appendix for those who wish to translate the units according to their personal preference.

2.
BACKGROUND

Forest Resource. Some 4.1 million ha or three quarters of the area of Nova Scotia is forested. Softwood species account for 2.2 million ha, hardwoods for 0.7 million ha and mixedwood forests cover the remaining 1.2 million ha. Ownership shares are as follows:

Small private	52	percent
Large private	21	
Crown provincial	24	
Federal	3	

Woodlots of 400 ha or less in size are classed as small private. These are distributed widely in some 50,000 parcels which are owned primarily by approximately 30,000 individuals.

The three large pulp and paper companies have access to about 36 percent of the province's forest land, either through direct ownership or long term license, as shown in Table 2-1. In addition, they rely on small private woodlots for a substantial portion of their fibre needs.

Table 2-1

Forests Owned and Licensed by Larger Pulp and Paper Companies

(thousand ha)

	Owned	Licensed	Total
Bowater	303	-	303
Scott	445	85	530
Stora	20	607	627
	768	692	1,460
Percent of forest land	19%	17%	36%

Production. The output of industrial roundwood exceeded 3.5 million m^3 in 1986. The breakdown of production by ownership class is shown in Table 2.2.

Table 2-2

Industrial Roundwood Production in 1986

(thousand m^3)

	Sawlogs	Other	Total
Small private	391	907	1,298
Large private	599	875	1,474
Provincial Crown	72	689	761
	1,062	2,471	3,533
Percent hardwood	5%	11%	9%

Two distinct output trends are apparent since 1950. The production of sawlogs has fallen steadily and now rests at half of the early post-war volume. In contrast, pulpwood production has increased by nearly seven times, reflecting the fibre demands of the three large pulp mills, two of which have been built since 1960.

The relative shares of output from small private, large private and Crown forests have not altered appreciably since the late 1960s.

The relative shares of forest area are shown by ownership in Table 2-3 along with roundwood production shares for the four years 1983-86. It should be pointed out that the production share for small private forests is understated by the exclusion of fuel wood. If this were added in the small private share of total production would be closer to 50 percent, rather than the 43 percent shown in the table.

Table 2-3

Comparison of Area and Production Shares by Ownership Class

(percent)

	Forest Area	Production 1983-86
Small private	52	43
Large private	21	39
Provincial Crown	24	18
Federal	3	-
	100	100

New Legislation. The Minister of Lands and Forests has gone through an intensive period of policy formulation and legislation since the report of the Royal Commission on Forestry. The 1986 forest policy statement has been followed in rapid succession by five major statutes bearing on forestry practice.

1. Forests Act
2. Forest Enhancement Act
3. Primary Forest Products Marketing Board Act
4. Crown Lands Act
5. Wildlife Act

Taken as a group, this legislation provides a framework for renewable resource management which is the most comprehensive and up-to-date in Canada. Now comes the task of implementation, which involves the establishment of strategic plans, related programs, the appointment of boards and commissions, the development of regulations and the scrutiny of institutions such as forest tenures and Crown stumpage.

Underlying this activity are the goals and objectives approved by the Province. Those which are especially relevant to this study are:

- a healthier, more productive forest capable of yielding increased volumes of high quality products

- encouragement of the management of private forest lands
- more effective management of Crown lands
- enhancing the viability of forest-based manufacturing
- a doubling of forest production by the year 2025
- maintenance and enhancement of non-timber values associated with the forest

The foregoing are listed here because they comprise the policy context within which this review is conducted.

3.
CROWN TENURES

Sales Volume. Crown timber is sold under three distinct arrangements. The first and most significant are the long term licenses governing the relations of the Province with Scott and Stora. The second in importance is the Forest Resource Utilization Agreement known as the Section 79A license in the previous Crown Lands Act (Sec. 32 in the current one). Some 12 licenses are in effect with independent sawmill operators and a 13th covers a portion of the fibre supplies of Canexel Inc., the hardboard producer located at East River. The third type is sale by tender, usually as standing timber. There are occasional roadside sales in small volumes.

The volumes of Crown timber sold in the last four years are set out in Table 3-1. During the last four years, Stora and Scott accounted for 86 percent of the total, Section 79A for 9 percent and tendered or direct sales for 5 percent.

By type of product, softwood pulpwood and softood sawlogs represent 75 and 9 percent respectively. Studwood volumes were only a fraction of 1 percent, while hardwood and other products accounted for 15 percent. A new product classification was introduced in 1986/87 to record separately an increasing volume of "fuel chips". These are from Stora limits and are harvested as part of a combined salvage and forest rehabilitation operation. This amounts to an 18 percent addition to the total shown in Table 3-1.

Basis for Tenure Agreements. A very simple rationale underlies the concept of a tenure agreement. The Province grants rights to Crown forest land or timber thereon in exchange for these principal benefits:

1. Income and employment generation
2. Regional economic activity
3. Stumpage and other revenue
4. Other obligations, which may include silviculture, access roads

Table 3-1

Crown Timber Sales Volume
by Type of Sale and Product

(thousand m^3)

	1983/84	1984/85	1985/86	1986/87
Long term licenses (Stora, Scott)	489	642	600	648
Section 79A	48	67	84	56
Tendered Sales	28	26	49	48
	565	735	733	752
Softwood pulpwood	444	544	564	548
Softwood sawlogs	49	67	74	62
Studwood	2	2	7	5
Other	70	122	88	137
	565	735	733	752

Note: Not included are 133,000 m^3 of fuel chips in 1986/87, the first year so classified.

The same tenure agreements provide companies with investment opportunities and related incentives. Their principal objectives are:

1. A long term, stable raw material supply
2. Fair stumpage and tax treatment
3. Freedom from arbitrary and unpredictable regulations or charges
4. Firm agreement on infrastructure availability and cost
5. A positive administrative climate in which to conduct routine business

It is vital to keep these two sets of objectives clearly in view when contemplating any changes to an existing agreement or in drafting a new one.

Obligations of Tenure Holder. Once an understanding has been reached at a senior level, a detailed agreement is written to cover a variety of terms and conditions. The individual documents will specify which of the following items are binding on the holder:

- location of the available timber
- annual production limits and period averages
- length of term
- stumpage charges
- utilization standards
- access roads
- environmental regulations
- administrative matters (working plans, reports, penalties, appeals)
- forest management obligations (post harvest silviculture, protection, wildlife and recreation guidelines)
- export privileges
- scaling
- withdrawals for single purpose use

4.
PRIVATE FORESTS AND ORGANIZATIONS

Production Volume. As indicated in Chapter 2, small private woodlots account for 52 percent of the forest land in Nova Scotia and 43 percent of industrial roundwood production. The large private owners comprise 21 percent of the forest area and 39 percent of the output. The quality of the private forests is substantially better than those on Crown land, as would be expected from a comparison of land capability ratings and inventory data.

The output from large and small private forests has been relatively stable over the past 15 years, although the sawlog share continues to drift lower along a trend line reaching back to the late 1940s. The Cape Breton stockpile of salvage wood will be fully utilized in 1987 and this will mean greater sales opportunities for private owners in the years ahead.

Organizational Structures. The three large pulp and paper companies are members of national organizations such as the Canadian Pulp and Paper Association which has a Woodlands Section and a Forest Policy Committee. They do not have a provincial organization.

The Maritime Lumber Bureau represents sawmills in the areas of trade promotion and grading. The Nova Scotia Forest Products Association has in its membership the majority of sawmill owners as well as other solid wood products companies, and the pulp and paper producers. It deals with the Province on a whole range of forestry and forest industry policies.

A newer group named the Wood Products Manufacturers Association of Nova Scotia embraces about 25 wood processors in the central region but not the pulp and paper group. This is a newer association, formed in 1981 as the registered bargaining agent for its members with Scott. Its main focus is the relationship between sawmills and the pulp and paper companies, and more specifically on the prices paid to the sawmillers for chips and pulpwood.

Two woodlot groups are active in the Province. The oldest is the Nova Scotia Woodlot Owners and Operators Association (NSWOOA), now based in Bible Hill. It was formed initially in 1966, and has since received an annual grant from the Province. Its objectives are directed generally toward policies and programs to improve woodlot productivity and income. The Central Wood Supplies Division located in New Glasgow is associated with NSWOOA. Its main activity is negotiating with Scott on roadside prices and quotas for members. It presently represents approximately 700 owners and operators, and charges a membership fee of $10 annually. The "operator" members are contract loggers, truckers and silviculture firms.

The second woodlot group is called the Nova Scotia Landowners and Forest Fibre Producers Association. It was formed in 1985 as a breakaway group from the NSWOOA and has parallel functions. This newer group operates out of Port Hawkesbury and deals primarily with Stora pulpwood suppliers in the seven eastern counties. It collects a check-off of $0.95 per cord as its main source of operating funds.

Group Ventures. The first group venture was started in 1975 under ARDA. Others were organized during the first General Development Agreement between Nova Scotia and Ottawa. Federal and provincial money for access roads and silviculture was channeled through these ventures in order to simplify administration, a practice continued under the Forest Resource Development Agreement (FRDA).

At present, there are 18 group ventures in the Province, 6 of which are organized as cooperatives and 12 as limited companies. Over 1,600 small woodlot owners are the shareholders. While the initial emphasis was on forest management activities, the group ventures have always been involved in marketing. They are now increasingly active in public relations and extension. They also conduct harvesting on behalf of their shareholders, using equipment and facilities held as group venture assets or through contractors engaged by a group venture.

The group ventures all have a full-time staff, including a manager, a professional forester, a forest technician and a secretary. A typical group venture has an annual administrative and operating budget of $70,000 - $90,000 (reimbursed by the Province net of commission income). In addition, they collect a 5 percent commission on sales amounting to perhaps $200,000 and they administer a silviculture budget of $200,000 or more through the Forest Resource Development Agreement. They also charge $100 for a share, although a larger owner may be required to buy a second or third share.

The group ventures are expanding steadily in total membership and in area. Their combined sales are around 350,000 m^3 which is now equivalent to one quarter of woodlot fibre production.

5.
CROWN STUMPAGE

Introduction

Stumpage is the price paid for timber standing uncut in the forest. In Nova Scotia the stumpage price for Crown timber is set in various ways. The procedure in this section is to summarize the Crown stumpage paid in 1986/87, then to describe in turn the main types of Crown timber sales now in use. Some historical information on stumpage will then be given, to assist in setting the stage for a series of recommendations in Chapter 8.

Stumpage is priced variously in dollars per cord, per m^3, per metric tonne and per thousand board feet log scale, depending on the product and the buyer. Preference is given here to prices per m^3, although traditional units may also be shown for the convenience of those who are unaccustomed to metric.

Long term licenses are in effect with Scott and Stora. There are twelve sawmills and one hardboard mill with Section 79A agreements. In addition, there are tendered sales of standing timber and occasionally cut timber at roadside. The distribution of Crown timber sales in 1986/87 for all species was as follows:

	Quantity	Value
Long term licenses	86.2%	$ 942,134
Section 79A	7.4	325,864
Tendered sales	6.4	184,412
	100.0	$1,452,410

Crown Stumpage Summary

A four-year record of softwood stumpage per m^3 is set out in Table 5-1. The rather substantial differences by type of buyer will be discussed in

subsequent paragraphs. Meanwhile, the readers is cautioned not to draw conclusions prematurely about fairness.

Table 5-1

Softwood Crown Stumpage Receipts
(Before Rebates for Silviculture)

(dollars per m^3)

	1983/84	1984/85	1985/86	1986/87
Long term licenses	$ 0.67	$ 1.02	$ 1.07	$1.39
Section 79A	5.82	5.09	5.45	6.32
Tendered sales	9.88	5.80	7.19	5.36
Softwood	$ 1.29	$ 1.52	$ 1.75	$1.90

Hardwood stumpages averaged $1.70 per m^3 for roundwood, in 1986/87 compared to the $1.90 per m^3 for softwood.

Stumpage is not necessarily the only cost of securing Crown timber. The tenure or license agreements vary considerably with respect to responsibilities for access roads and their maintenance, as well as the amounts spent on silviculture. The latter may or may not be rebated. Thus, Stora paid $1.24 per m^3 ($2.75 per cord) for healthy softwood pulp in 1985/86. The silviculture rebate to Stora was limited to $0.79 per m^3 ($1.75 per cord) of healthy softwood, under the terms of their license. The silviculture rebate declined in recent years as the salvage harvest increased.

In contrast to the Stora agreement, the sawmills operating under Section 79A licenses paid an average of $4.12 per m^3 for softwood pulp ($9.10 per cord), and they carried no silviculture costs. On balance, the Section 79A stumpage was higher, though it is difficult to say precisely how much higher without additional information. Moreover, the Stora and Scott stumpage rates were both set at a low level initially to provide an incentive for the companies to invest in Nova Scotia. There is still a substantial incentive element remaining in the rates being paid by these two companies today.

Stora Stumpage

The original pulpwood stumpage commitment was included in an agreement enacted by the legislature in 1958, and the mill commenced production on January 2, 1962. The Crown provided Stora with annual cutting rights to virtually all of the public timber in the seven eastern counties, for a term of 50 years. This agreement was amended in 1969 when the first newsprint line was proposed. A new 50-year term began in 1971 and an "evergreen" clause was added to allow for successive extensions of 10 years, provided that Stora has complied with the conditions in the license agreements.

The stumpage rates for healthy pulpwood are shown in Table 5-2. The new softwood price of $1.99 per m^3 ($4.39 per cord) was recently agreed to for a period of 10 years. Notes below the table indicate the method of adjusting prices by reference to the price of newsprint in New York.

There are several other Crown stumpage rates currently applicable to Stora. Disease-infected or damaged softwood is set at $0.23 per m^3 ($0.50 per cord), the same as for fuelwood chips. Sawlog stumpage, both softwood and hardwood, is set at $3.59 per m^3 ($20.31 per thousand board feet). The entire stumpage is not traced back to 1958 because pulpwood accounts for virtually all of the roundwood production on the Stora license.

Scott Stumpage

The original Scott agreement was signed on August 1, 1966 for a term of 50 years, and with an option to renew for a further period of 40 years. The mill started up on September 11, 1967 with a 10-year stumpage rate of $0.91 per m^3 ($2.00 per cord). For the second 10 years the stumpage adjustment formula was also based on the price of newsprint quoted in New York.

Table 5-2

Stora Pulpwood Stumpage
1958 - 1987

	$ Per m3		$ Per Cord	
Softwood:				
May 3. 58	$0.45	(1)	$1.00	
Jul 22. 71 (15 years)	1.24		2.75	(3)
Jul 22. 86 (10 years)	1.99	(2)	4.39	
Hardwood:				
May 3. 58	$0.23		$0.50	
Jul 22. 71 (10 years)	0.23		0.50	
Jul 22. 81 (10 years)	1.13		2.50	

Notes

(1) The initial agreement was for 15 years, but a new 15-year period was negotiated in 1971.

(2) The 1986 agreement is for ten years. The adjustment was based on the following formula in the 1971 agreement.

$$\$1.75 + (\$1.00 \times \frac{\text{U.S. newsprint price 1st half 1986)}}{\text{U.S. newsprint price 1971}}$$

$$= \$1.75 + (\$1.00 \times \$491/186 \text{ per tonne})$$

$$= \$1.75 + 2.64$$

$$= 4.39$$

(3) There is a maximum rebate of $1.75 per cord for silviculture work done on Crown land.

New softwood pulp rates for Scott will be negotiated for use from September 11, 1987. The original agreement states that stumpage for the third 10-year period will be "at such rate as will be mutually agreed upon".

Stumpage prices for other products are roughly the same for Scott as those for Stora. See Table 5-3 for a brief summary of Scott's pulpwood stumpage during the first two decades.

Table 5-3

Scott Pulpwood Stumpage
1966 - 1987

	$ Per m3	$ Per Cord
Softwood:		
Sept 11. 67 (10 years)	$0.91	$2.00
Sept 11. 77 (10 years)	2.06 (1)	4.55
Hardwood:		
Sept 11. 67 (10 years)	$0.23	$0.50
Sept 11. 77 (10 years)	0.68 (2)	1.50

Notes

(1) The adjustment formula for softwood pulpwood, based on newsprint prices, was calculated as follows:

$$\frac{\$305 \text{ (1977 price)}}{134 \text{ (old price)}} \times \$2.00 = \$4.55 \text{ per cord}$$

(2) The hardwood rate was set by mutual agreement.

The stumpage rates applicable to Scott for products other than pulpwood were not set out in the 1965 legislation formalizing their agreement with the province. The act simply states that the company will pay "such rates as may be mutually agreed upon at the commencement of each calendar year". The sawlog rates since 1966 have been as follows for softwood:

	$ Per m3	$ Per M f.b.m.
1966	$3.53	$20.00
1977 Sept. 11	4.41	25.00
1983 Jan. 1	3.53	20.00
1986 Jan. 1	3.62	20.48

Hardwood sawlog stumpages were set in 1966 at $3.53 per m3 ($20.00 per thousand board feet) and remained there until January 1, 1986 when they moved to $3.62 per m3 ($20.48 per M board feet). Fuelwood stumpage has ranged from

a low of $0.45 per m3 ($1.00 per cord) to the present rate of $2.72 per m3 ($6.00 per cord).

Section 79A

Legislation was amended in 1974 to provide for a new set of terms for the sale of Crown timber to wood manufacturing companies. With the exception of Masonite, now Canexel, these have all been with sawmills which have chipping facilities. Thirteen licenses are in force. Their total Crown roundwood production was 55,543 m3 in 1986/87. This volume includes about half of Crown forest sawlog production and less than 5 percent of Crown pulpwood.

Section 79A stumpage rates for various products have not increased uniformly since 1979. For example, softwood pulpwood is up by 52 percent and softwood sawlogs by 17 percent. The rates in effect in 1979 are compared in Table 5-4 with those in place since January 1, 1986. Adjustments are scheduled for 18-month intervals but the timing was postponed on January 1, 1985 because of uncertainties concerning the U.S. lumber controversy.

Table 5-4

Section 79A Stumpage
1979 and 1986

	$ Per m3		$ Per Unit		
	1979	1986	1979	1986	
Softwood:					
Sawlogs	$ 7.06	$ 8.25	$40.00	$46.72	M bd. ft.
Pulpwood	2.72	4.12	6.00	9.10	cord
Studwood, lathwood	5.43	6.48	12.00	14.31	cord
Hardwood:					
Oak sawlogs	13.24	15.47	75.00	87.59	M bd. ft.
Other hardwood	10.15	12.38	57.50	70.09	M bd. ft.
Pulpwood	1.81	2.74	4.00	6.05	cord
Other Products:					
Fuelwood	3.62	3.62	8.00	8.00	cord
Red pine poles	-	-	0.30	0.60	lineal ft.

Stumpage adjustment criteria have considerable variability. Sawlog stumpage rates are re-calculated on each adjustment date by a formula based on prices furnished by the Maritime Lumber Bureau. Section 6(b)(1)(i) of the agreements reads as follows:

> If on such date "the average Maritime finished lumber price for random lengths of lumber" exceeds Two Hundred and Forty-Four ($244.00) Dollars per thousand feet board measure, the price of Forty ($40.00) Dollars shall be increased by sixteen point four (16.4%) percent of the amount of such excess.

The base price for lumber was $244 per thousand board feet and the initial stumpage was $40 per thousand board feet of log scale. This yields a ratio of 16.4 percent which enters the formula in this way:

$$\text{Stumpage} = \$40 + 16.4\% \text{ (Current Price} - \$244)$$

Prices for oak sawlogs and other hardwood sawlogs have similar adjustments, each of which starts with its own initial stumpage and percentage factors. However, the same base price of $244 per thousand is used to calculate both softwood and hardwood sawlog stumpage changes.

Pulpwood stumpage is re-calculated by reference to newsprint prices quoted in New York. The base price is $320 U.S. per short ton and the initial stumpage is $2.72 per m^3 ($6.00 per cord). This yields a ratio of $6/320 or 1.88 percent for softwood pulp and $4/320 or 1.24 percent for hardwood pulp. The calculation for softwood is as follows:

$$\text{Stumpage} = \$6 \text{ per cord} + 1.88\% \text{ (Current Price} - \$320 \text{ U.S.)}$$

The Section 79A agreements state that hardwood fuelwood stumpage

> "shall be adjusted from year to year to conform with the annual stumpage rate as set by the Department of Lands and Forests."

Finally, studwood stumpage adjustments are indexed to the MLB price for studs, and other forest products are negotiated "from time to time".

Average stumpage rates paid by Section 79A licenses are shown in Table 5-5 for major products. There are no stumpage offsets for either silviculture or forest access roads.

Stumpage prices tend at times to ignore potentially significant variations in hauling distances, as well as differences in species and grade. The system has not been that finely tuned and it would obviously complicate the adjustment mechanism if this were attempted.

Table 5-5

Section 79A Average Stumpage Charges
By Species and Type of Product
(dollars m^3)

	1983/84	1984/85	1985/86	1986/87
Softwood:				
Sawlogs	$6.67	$6.56	$7.05	$ 7.67
Studwood	5.89	5.60	5.46	6.57
Pulpwood	2.36	2.27	3.05	3.66
Hardwood:				
Sawlogs	8.41	6.96	6.52	12.22
Pulpwood	2.69	2.12	2.64	2.72
Fuelwood	(1)	(1)	(1)	3.62
All Roundwood	$5.31	$4.69	$5.06	$ 5.87

Notes (1) Fuelwood is included with hardwood pulpwood.

Tender Sales

As noted earlier, 6.4 percent of the Crown timber roundwood volumes in 1986/87 were made by tendering standing timber and by direct roadside sales. The average sold by tender over the past four years is 5.4 percent. Over half of this volume was in hardwood species which run heavily to fuelwood.

Stumpage rates for this type of sale were averaged for softwoods and the pattern which emerges over the last four years is shown in Table 5-6.

Table 5-6

Tendered Sales Softwood Stumpage
(dollars m3)

	1983/84	1984/85	1985/86	1986/87
Sawlogs	$12.61	$8.91	$10.41	$11.35
Studwood	-	-	-	7.36
Pulpwood	4.72	3.00	3.36	3.38
	$ 9.88	$5.80	$ 7.19	$ 5.36

It is difficult to generalize from the data in this table without more knowledge of location in relation to processing mills, the volumes and grades in the typical sale, access roads and so on. The average softwood sawlog stumpage in Table 5-6 is higher in each of the four years than for Section 79A sales shown in Table 5-5. In the case of tendered softwood pulp, the stumpages shown are higher than Section 79A in three of the four years.

Recapitulation of Crown Stumpages

Some cross comparisons will now be made for Scott, Stora and Section 79A sales.

The modest pulpwood stumpage rates set for Stora in the late 1950s were clearly intended as incentives to encourage them to invest in Nova Scotia. When Scott came in a decade later, they were also given incentive rates.

Section 79A stumpage rates for softwood pulp have been and continue to be well above those paid by the two large companies. The sawmills have paid roughly double the average rates for Stora and Scott since the early 1970s.

Turning next to softwood sawlog stumpage rates, Scott and Stora have a considerable advantage over Section 79A sawmills. The latter have generally paid more than double the rates of the two large companies. Companies buying sawlogs by tender have been paying considerably more than the rates under Section 79A.

Silviculture Rebates

Some silviculture rebates have been applied against stumpage in the case of both Scott and Stora. The rebate system has not functioned uniformly since the extensive spruce budworm damage prompted widespread salvage programs.

The Stora situation on silviculture rebates is entirely different. The massive losses to insects on Cape Breton and elsewhere created the need for a salvage program. So-called "healthy" pulpwood was sold for $1.24 per m^3 ($2.75 per cord), while "disease-infected or damaged" pulp was charged a salvage rate of $0.23 per m^3 ($0.50 per cord), in keeping with the license agreement. During much of the time since 1971, Stora paid an average stumpage well below $1.24 per m^3. Their allowable silviculture rebate was $0.79 per m^3 ($1.75 per cord) of healthy softwood.

It is held by some that the appropriate comparison is the net stumpage, after deducting the silviculture rebate, because that is what the Crown actually receives. Others maintain that the net stumpage charge should be increased by the amount of silviculture expenditure on Crown forests for which no rebate is given. The latter view recognizes that stumpage, silviculture and road costs should be examined as a package.

Anomalies in Crown Tenures

Elements of unfairness have crept into the Crown stumpage system over time. It is now 30 years since the original Stora agreement was signed and over 22 years since the negotiations were concluded with Scott. A review of the anomalies among the various licensees is only prudent, given the major changes which have taken place. For example, none of the parties to agreements made over 20 years ago could have foreseen the extent of change and its rapid pace. The climate in which industry, government and landowners function has altered dramatically over the last couple of decades. Examples are listed below:

- the inflationary spiral and its tenacity
- the petroleum crisis and energy cost escalation
- differential rates of change in prices of forest products
- changes in the relative importance of products (lumber, pulp)
- the shift in product specifications (basis weight)
- insect damage to the forest
- evolving environmental expectations
- emerging shortages in timber supply
- changes in the prices of roundwood in adjacent regions

At the same time, fairness also requires us to acknowledge the legitimacy of negotiated agreements. In the case of Stora, the province invited them to invest in Nova Scotia and offered modest stumpage rates as one incentive among several. Scott came in a decade later and was granted similar incentives. The analysis which follows is made in this dual context: unanticipated change on the one hand and contractual commitments on the other.

The most noticeable anomalies are the differentials in stumpage rates among companies and license categories, and the rebates available to some companies for either roads or silviculture expenditures. These have already been noted. Others are the variations in formulas for adjusting stumpage, the length of term over which a given rate remains stable, the units of measure in which various products are sold, the lack of recognition for quality and grade, and the apparently higher prices paid for tendered sales.

Stumpage Differentials. These differentials have been discussed at some length and pictured for softwood species in the previous charts. The variability in hardwood stumpage is even more pronounced. This is seen in Table 5-7, which shows the stumpage price differentials for both species groups at mid-1987.

The first observation is that Section 79A sawmill stumpages are at least double those for Stora and Scott. The exception is fuelwood which is only 33 percent higher. The second comment is that the two large companies now pay virtually the same stumpage, except for hardwood pulp where Scott's rate is half that of Stora.

Table 5-7

Stumpage Rate Comparisons (mid-1987)

(dollars per m^3)

	Scott	Stora	Sec. 79A
Softwood:			
Pulp (healthy)	$2.06	$1.99	$4.12
Pulp (diseased)		0.23	
Sawlogs	3.53	3.59	8.25
Hardwood:			
Pulp	0.68	1.13	2.74
Sawlogs	3.53	3.59	12.38
Fuelwood	2.72	2.72	3.62

Adjustment Formulas. Scott softwood pulp stumpage rate adjustments have been based in the past on newsprint prices, even though their product is

bleached kraft pulp. Moreover, the index was calculated from "quoted" (not list) prices in U.S. dollars for deliveries in the New York City area, rather than in Canadian dollars at the mill gate. Stora rate adjustments were also based on quoted prices for newsprint delivered New York, in U.S. dollars. But the Stora base years differ from Scott, and the Stora escalation factor is not applied to the entire base price (see the footnotes to Tables 5-2 and 5-3). Stora also has a minimum rate of $1.24 per m3 ($2.75 per cord), below which the rate must not fall.

Stora's present pulp rate was set earlier this year in discussions with the province, according to the formula stipulated in the 1970 legislation. It was made effective July 22, 1986. Scott's present rate is due for upward adjustment on September 11, 1987. This time it will be set by mutual agreement rather than by formula.

Hardwood pulp rates were set initially for these two companies at $0.23 per m^3 ($0.50 per cord). The Scott rate was boosted to $0.68 per m^3 ($1.50 per cord) in 1977 and is now subject to revision. The Stora rate was set by mutual agreement at $1.13 per m^3 ($2.50 per cord) in 1981 and is scheduled for revision in 1991.

Periodic adjustments in sawlog and fuelwood stumpage were made for Stora and Scott according to rates mutually agreed upon.

Turning next to Section 79A pulp stumpage, adjustments in recent years have been based on newsprint prices in U.S. dollars. Sawlog stumpages of both species groups have been based on an index calculated from a simple average of ten items of random length softwood lumber, half of them one-inch and half two inches in thickness, and reflecting domesic and export markets.

The two oldest Section 79A agreements have rates and adjustment factors different from the other 11. The reasons for this have their origin in the fact that the province acquired their land prior to 1979 and licensed the timber back under specific conditions.

Length of Term Between Adjustments. Stora's initial softwood pulp stumpage rate was set for 15 years. Another 15-year period was set in 1971 when the first newsprint machine commenced operation. The subsequent periods were set at 10 years each. For hardwood pulpwood the rate was set in 1958 at 10 years and this has since been the standard term. Sawlog and other products were to be adjusted annually. Scott's agreement specified 10-year terms from the outset.

Section 79A stumpage rates have, as a matter of practice, been considered for revision at intervals of 18 months. However, the term has been extended on occasion. During the recent prolonged depression in lumber markets, adjustments were delayed. Again there was a postponement of the July 1, 1986 adjustment date, due this time to uncertainties concerning the outcome of the U.S. softwood lumber countervail action.

Units of Measure. The variety of units is a serious handicap for anyone trying to make comparisons. The decision on the part of the province to move towards metric is a sound one. Unfortunately, there are many who find it difficult to switch from the traditional cords, thousand board feet and acres. The recent trend to weight scaling introduces still another complication, which may be easy for a pulp and paper company, but it is certainly confusing for the rest of the industry and the public. The pending introduction of a new scaling manual presents an opportunity to lessen the existing confusion.

Quality and Grade. In several other provinces the timber sales branches go to considerable lengths to distinguish between a variety of grade and dimension specifications and to set different stumpages for the main species. The administrative cost involved is substantial and in the end may add nothing to total stumpage revenue. It is also questionable whether the differentials contribute as intended to incentives aimed at improved utilization. The Nova Scotia system is probably as efficient as any and no extensive changes are suggested.

Tendered Sales. It is apparent that higher stumpages are being paid as a general rule for tendered sales than for the Section 79A licensees and certainly for the long term licenses. Small business sales in other provinces are often designed to give them more lenient terms and conditions, and when this is done the comparison of tendered and licensee sales must be done with care.

6.
INVESTMENT IN FOREST MANAGEMENT

Introduction

The second major topic in this study is the adequacy of spending on forest management. A broad definition of forest management usually includes protection from fire, insects and disease, as well as inventory, policy and planning, timber sales and silviculture. In this chapter we will confine our attention to silviculture treatments which range from site preparation and regeneration through subsequent weeding and spacing of a new crop, thinning and other kinds of timber stand improvement. These activities are often referred to as forest renewal, and can be applied to shelterwood or selection cutting, areas which have been clear cut, or rehabilitation of forest land which is not satisfactorily restocked.

The discussion will be limited to general targets rather than detailed prescriptions. The principal source of information is the Department of Lands and Forests, supplemented by company data. Reference has also been made to the 1984 Report of the Royal Commission on Forestry and to the submission made by the Department to the Commission. The approach in this chapter is to set out some background information on the need for improved management, the pattern of increasing silviculture activity, a description of the production targets adapted by the provincial government, and then a discussion of the sources of silviculture funding which are currently in place.

Background

The problems with the Nova Scotia forests were described in the documents referred to in the previous paragraph. These include a serious age class imbalance with excessive overmature stands, leading in turn to high natural mortality and vulnerability to spruce budworm and other insect attack. Softwood stands are said to be yielding only 25 percent of their potential.

The need for intensive silviculture, to improve the productivity, quality and diversity of the timber lands, has been widely recognized by all sectors of the forest community. The forests have been victims of highgrading, natural depletion by insects, disease and fire, and neglect of forest renewal. According to the Department's 1983 brief, the industry requires 3.3 million m^3 to operate at capacity, not counting fuelwood. However, they stated that the sustainable harvest would fall to 2.4 million m^3 in the absence of appropriate silviculture.

The Royal Commission gave a similarly bleak picture of the downside potential:

> "...by approximately the year 2005, if current practices are maintained, there will not be enough raw material to meet the needs of industry in the seven eastern counties..." (pp. 9-10).

They went on to say that there was already a shortage of sawlog quality material and that in two decades the Scott and Stora mills might be faced with curtailment.

Fortunately, the forest land base has the biological potential not only to sustain the present harvest but to support a doubling of industrial consumption. Accordingly, the Commission set out a range of targets and came down strongly in favor of expanded forest renewal programs, together with an emphasis on sawlogs and on the orderly elimination of stands most susceptible to destruction by insects. The Commission estimated that Nova Scotia could be harvesting 7.8 million m^3 by 2030 - 2040, and that the combination of restoration, ongoing conservation and timber stand improvement would cost a minimum of $20 million annually.

Silviculture in Recent Years

Historical data on Nova Scotia silviculture is scarce. Not much planting and subsequent tending was done prior to 1970, although there appear to be notable exceptions where a few private landowners had made a practice of

building up their forest capital. It is not likely that total spending in silviculture exceeded $1 million in 1970.

By 1976, the estimate of seedlings planted is three million, and two years later the number reached six million. Nearly half of the seedlings planted in 1978 were accounted for by Stora, which had brought the Scandinavian tradition of forest renewal to the province. They continue to set the pace with more than 11 million seedlings planted in 1986, compared with 24 million for the entire province. During the same decade, cleaning and other silvicultural treatments increased from 2,000 to 9,000 ha annually.

The forward progress of silviculture has been associated with federal assistance. Under the Agriculture and Rural Development Act (ARDA) of 1962, Nova Scotia received over $3 million in matching federal funds for a variety of forest activities such as access roads, boundary line surveys, reforestation, stand improvement and land acquisition. The ARDA program terminated in early 1976.

In 1974, a 10-year federal-provincial General Development Agreement (GDA) was concluded, under which a subsidiary agreement for forestry was signed in 1977. A successor agreement, the Forest Resource Development Agreement (FRDA) was signed on August 31, 1982. A new umbrella agreement, the Economic and Regional Development Agreement (ERDA), was implemented in 1984, and a new 3-year Forest Renewal Agreement (FRA) was signed in mid-1984. In addition, there were some federal funds spent on forestry employment creation under Canada Works in the early 1980s.

In addition to the federal assistance, the province has come close to matching it since the GDA. It is not an easy task to derive annual expenditures made on silviculture alone under these agreements and comparable private expenditures are not collected routinely. Nevertheless, estimates provided by the Department of Lands and Forests suggest that $20 million is now spent on

silviculture annually. The allocation by source of funds is roughly as follows for 1986:

Province	$ 7 million
Federal	9
Industry, net of grants	3
Woodlot, net of grants	1
	$20

The FRA is phasing out in 1987 and the extended FRDA in 1989. It is assumed that a new FRDA will be negotiated with Ottawa. No projections are available from industry or private woodlot owners. On balance, it is assumed that silviculture spending has now reached a temporary plateau.

Provincial Production Targets

The tabling of the Royal Commission Report was followed by a searching examination of its recommendations, and a further review of general economic and social goals. The province has now adopted a target of doubling forest production by 2025. If we take the 1986 harvest as the base, this means an increase from 3.5 million to 7.0 million m^3. This is an entirely realistic objective from the standpoint of marketing, given the anticipated increase in world consumption of wood and wood fibre, as well as the capability of Nova Scotia's forest land. Each of the three large pulp and paper mills in Nova Scotia has indicated that expansion plans are under active study.

The annual silviculture budget necessary to achieve 7 million m^3 of roundwood production is estimated by the Department at $25 million. While it might appear from the federal-provincial joint agreements that this spending level has already been reached, it must be emphasized that only 6,000 woodlots have participated in the agreements to date. Less than 20 percent of the area in private woodlots is now under management and this figure must be increased to 50 percent at least if provincial targets for roundwood production are to be reached.

The Department of Lands and Forests has prepared estimates of the annual allowable cut (AAC) objectives for 2025 for both softwood and hardwood. These are shown in Table 6-1 along with the actual harvest in 1986. On a province-wide basis the softwood output is getting close to the AAC projected for 1990, which can be taken to mean that some areas are being cut above their sustainable levels. Cape Breton is a case in point where an imbalance of age classes will force a curtailment of AAC. Hardwoods present a quite different picture, namely an excess of fibre which will continue unless much larger markets are found.

To further illustrate the calculations behind the projected AAC's in Table 6-1, the fibre production is estimated for productive forests only in Table 6-2. If we assume that the productivity (mean annual increment or MAI) will be increased in softwood stands from 2.1 to 8.4 m^3 per ha per year, as the move is made to intensive management, then the softwood AAC objectives in Table 6-1 can be achieved. This kind of analysis has indeed been made by the Department and it seems that the objective of doubling the AAC is feasible. The difficulty, of course, is that a sufficient number of the private woodlot owners are unlikely to be persuaded to manage their land by the turn of the century.

Table 6-1

Roundwood Production and AAC Objectives

(million m^3)

	1986 Actual	1990 AAC	2025 AAC
Softwood	3.198	3.552	5.706
Hardwood	.334	2.524	2.945
	3.532	6.076	8.651

Table 6-2

Softwood Forest Productivity Potential in Nova Scotia

	Productive Forest (million ha)	MAI (m^3/ha/yr)	Potential AAC (million m^3)
Softwood			
Unmanaged	1.386	2.1	2.9
Managed	1.386	8.4	11.6

Silviculture Framework

Given the announced policy goal of doubling the availability of commercial timber supplies by 2025, the next step is to set out a systematic forest management policy framework designed to achieve that goal. This will require a series of decisions of a technical, financial and operational kind. These decisions are best viewed as a hierarchy, with each component depending on the previous one. The order of treatment can be approached in this sequence:

1. Production goals
   - volumes, species, locations
2. Technical
   - utilization standards
   - sawlog-pulpwood ratios
   - silviculture treatments
   - protection activities
3. Financial
   - sharing the costs
4. Operational
   - who does the field work
5. Performance audit
   - monitoring and feedback

Since the public owns only one fourth of the forest land, the policy framework must have the concurrence of both the small woodlot owners and the larger ones. The policies and related guidelines cannot be imposed by the

province. There must first be a concensus. This, in turn, is reached over time by a process of interaction among the partners. For the present purposes, the concensus building can be thought of as beginning with the appointment of the Royal Commission on Forestry, continuing through the enactment of supporting legislation, and following through with the development of this report.

7.
MARKET ACCESS FOR SMALL OWNERS

Introduction

The third major focus of Nova Scotia's new forest policy is on ways to improve the management of private lands. As stated in the 1986 document, the province intends to respond to the private owner's needs by ensuring that they:

1. Have a fair share of the available market for primary forest products, and receive a fair and reasonable return for primary forest products sold.
2. Continue to enjoy the traditional rights and responsibilities of private ownership of land.
3. Continue to receive incentive assistance in managing their lands for forestry purposes.

This chapter will discuss their share of the market, the prices they receive and the various institutional constraints which reduce their opportunities to earn and therefore to manage.

Market Share

Reliable market share data is not available prior to 1967. There was an extended discussion of market share, by ownership class, in the 1983 submission of the Department of Lands and Forests to the Royal Commision (pages 132 - 142). They pointed out that one peak in small private woodlot production was reached in 1970 at 1.7 million m^3, which was 58 percent of the total commercial forest production. That was before Scott began production and in a period when Crown forests were seriously under-utilized.

Then a sharp drop in small private production occurred in 1971 and 1972, due in large part to a decline in pulpwood exports and a sawmill slump. From 1972 to 1980 their volume drifted along at approximately 1.30 million m^3

annually. In 1980 the amount jumped to 1.86 million m^3, another production peak, influenced by strong markets and a salvage program. Since 1980, the volume has ranged between 1.5 and 1.3 million m^3, apart from an exceptional low recorded in the strike of the Canadian Paperworkers Union at the Scott mill in 1982-83.

It is helpful to examine the market shares over successive periods of five years, in order to minimize the short term variations in the annual numbers. When this is done, the small private share of the Nova Scotia timber harvest is shown to increase in the following manner:

1972-76	39	percent
1977-81	40	
1982-86	43	

It is also worth noting that small owners account for 52 percent of productive forest land. This is well above their average share in the timber harvest. It is generally assumed that this difference results from two principal factors. The first is that much less than half of the small owners seem to have any motivation to manage their land for commercial timber production. Indeed only one owner in five is now engaged in serious forest renewal and these account for less than one fifth of the woodlot area. The second factor is the combination of constraints which include the low prices which have been paid traditionally for small owner wood.

The small owners produced over 50 percent of the province's sawlog output in 1984 and 1985. However, their share dropped under 40 percent in 1986, a level more consistent with the 39 - 40 percent for the decade ending in 1981.

The hardwood-softwood production mix has not been examined in detail, but it appears that small owners account for about one third of the commercial hardwood output. There is a serious gap in the data, however, with respect to fuelwood. Domestic use of wood for fuel is about 500,000 m^3 and the greater part of this is believed to originate on small private land. Fuelwood has not been classified as part of the historical commercial harvest. If it were, than the small

owner volume would increase by perhaps 400,000 m^3, thereby raising their share of total roundwood to the vicinity of 50 percent. Moreover the prices for fuelwood often exceed those for pulpwood.

Let us assume, therefore, that the small woodlot owners are producing a share of the total roundwood harvest which is roughly equal to their share of the forested area. Then if we hold to the previous assumption that less than 20 percent of the woodlots are presently managed, a potential problem emerges. They are probably drawing down their reservoir of mature timber at a rapid rate. This is not objectionable in itself, given the preponderance of mature timber. The disturbing factor is that so few are engaged in forest renewal following harvesting.

Can we infer from the discussion in this section that the small woodlot owners do not have a fair share of the available market? In volume terms they may be harvesting what they are entitled to, simply as a share of productive forest land. The more important question is: Are small owners getting a fair price for their pulpwood, sawlogs, fuelwood and other products?

Price Trends

Roadside prices for softwood pulp are shown in Appendix Table 7-1 for 1972 and subsequent years, as reported by NSWOOA and the industry. The three large companies are given separately. The data is compressed in Table 7-1 to show prices at 5-year intervals. Prices have increased in this period of 15 years by three times.

Roadside prices for hardwood pulp are now running about 10 - 12 percent below softwood pulp or $2.50 per m^3 ($5.50 per cord) less. Prices for sawlogs are not readily available from the woodlot owners or the purchasing sawmills, even though one third of the harvest from small owners consists of sawlog material.

Table 7-1

Comparison of Roadside Prices of Softwood Pulp
Selected Years

	Stora		Scott		Bowater
Per m^3					
1972	$ 7.02		$6.52		$ 7.24
1977	11.32		11.32		11.32
	No. 1(i)	No. 2			
1982	17.88	16.52	16.30		17.66
1987	22.63	20.37	19.35	(3 months)	21.28
			20.60	(9)	
Per Cord					
1972	$15.50		$14.40		$16.00
1977	25.00		25.00		25.00
	No. 1	No. 2			
1982	39.50	36.50	36.00		39.00
1987	50.00	45.00	42.75	(3)	47.00
			45.50	(9)(ii)	

Notes: (i) Stora has paid a premium since 1982 for loads which contain only one cull stick per m^3, it must be freshly cut green wood with a minimum top diameter of 3.5 inches and a maximum butt diameter of 18.5 inches.

(ii) Scott has a second set of prices which are negotiated with the Wood Products Manufacturers Association. The termination dates differ from the ones shown and the prices vary in a minor way. Scott also has a newly negotiated price of $18.79 per m^3 ($41.50 per cord) of softwood in tree length or random length.

The pulp prices are negotiated between associations and the Scott and Stora buyers. Stora buys the largest share of its open market pulp through the Nova Scotia Landowners and Forest Fibre Producers Association, the licensed bargaining agent for Stora suppliers in the seven eastern counties. Scott negotiates pulp prices for seven central counties through the Central Wood Suppliers Division (formerly the Scott Suppliers Division) of the Nova Scotia Wood Operators and Owners Association. In the case of residue chips and pulpwood from sawlog operations, Scott negotiates with the Nova Scotia Wood Products Manufacturers Association.

The negotiated results in each case are known as collective bargaining agreements. Bowater does not engage in bargaining with a designated agent but works one-on-one with woodlot owners.

Pulp suppliers to Stora and Scott pay a check-off of $0.43 per m^3 ($0.95 per cord) to the owner associations and they also pay a levy of $0.045 ($0.10 per cord) to the Primary Forests Products Marketing Board. These reduce the amounts actually received by the woodlot owners by just over 2 percent of the negotiated roadside price.

Fairness Criteria

We turn now to a brief discussion on the question: What is a fair roadside price? There are a number of criteria by which to judge fairness, for example:

1. Price comparisons in adjacent regions
2. Export prices
3. Transaction prices in auction
4. Return on forest owner's capital
5. Relationship to costs
6. Relationship to end product prices
7. Inference from market structure

Price Comparisons. The history of roadside pulp prices since 1972 do not demonstrate any inter-company discrimination of substance. In recent years Stora has tended to set the pace, including an incentive for high quality pulpwood used in newsprint. Scott tends to price slightly lower, indicating that its process can handle lower grade raw material and still produce quality bleached kraft pulp. Bowater tends to pay slightly higher than the other two as a matter of corporate strategy. On balance, however, the range is quite narrow.

Comparison of pulpwood prices in New Brunswick indicates they are somewhat higher than in Nova Scotia. Woodlot timber is purchased on the stump for about $6.80 per m^3 ($15.00 per cord) in New Brunswick. This compares with

around $4.00 per m^3 in Nova Scotia. The absence in recent years of published data on roadside prices in New Brunswick makes comparisons somewhat uncertain. For one thing, they tend to trade more generally in delivered prices than in roadside prices as in Nova Scotia. The "fair market value" schedule for Crown softwood stumpage in New Brunswick and the fact that Irving is buying small owner pulpwood in Nova Scotia at the present time are both indications of lower prices in Nova Scotia.

The same kind of information suggests that small private owners in Quebec also receive a higher roadside price than in Nova Scotia. This is what one would expect, given the much tighter supply of pulpwood in both neighboring provinces. Moreover, the marketing syndicates in Quebec and the marketing boards in New Brunswick have broader membership coverage and appear to have more effective bargaining power than their counterparts in Nova Scotia.

Export Prices. Export prices for Nova Scotia pulpwood are considerably higher than the roadside prices. The margin seems to be greater than can be accounted for by transportation, peeling and loading aboard vessels. A careful review of export markets would provide useful information for judging the adequacy of roadside prices.

Transaction or Auction Prices. There are some disposals of small private timber which are sold for the highest price available from contractors or others. These data are not published. Even if they were a matter of record, the effective ceiling price would be found to adhere rather closely to the price which has been bargained collectively through owner associations.

Return to Forest Capital. This is a difficult concept to apply in this context. Most of the woodlot timber being sold today is on forest land which was either inherited or was purchased at a modest price per ha. If we assume that the harvest is 120 m^3 per ha (20 cords per acre), then the imputed stumpage at $4.50 per m^3 ($10 per cord) works out to $540 per ha ($200 per acre). That is an average selling price per ha for a small woodlot today. In effect, the sale of woodlot timber on the stump for $4.50 per m^3 liquidates the owner's capital

investment in that particular asset. In most cases it would cost that much at least to regenerate and tend a new crop of trees. The owner would be further ahead to sell the timber and put his money in a savings account rather than leave it on the stump as an over-mature and perhaps declining asset.

Relationship to Costs. Does the woodlot owner cover his costs when he sells standing timber? Here are a typical set of costs today.

	$ per m^3	$ per cord
Access roads, boundary lines, misc.	2.72	6.00
Cutting, forwarding	13.58	30.00
Stumpage	4.52	10.00
	20.82	46.00

This picture is rather unpromising. There is no financial incentive to regenerate and tend a new forest, which will cost at least $5.00 per m^3, unless the owner can recover these costs and others as grants from the senior governments. Some prospect of fuelwood sales or perhaps a market for poles or pulpwood thinnings in the course of intensive management, together with higher stumpage, would offer an attractive financial incentive which does not presently exist.

Relationship to End Product Prices. A small woodlot owner's first instinct will be to follow the course of prices for lumber, pulp and newsprint. Using Statistics Canada Industry Selling Price Indexes as reference points, the comparative price changes from 1972 and 1979 to 1987 are as follows:

	From 1972 to 1987	From 1979 to 1987
Bleached kraft pulp	+372%	+58%
Newsprint	+322	+62
Wood industries	+142	+13
Roadside prices for softwood pulp	+203	+68

This schedule illustrates the variability in market prices within the forest products group. Lumber prices (as indicated by the Wood Industries Price Index)

have not escalated at the same rates as kraft pulp and newsprint since 1972. It is also apparent that the relative rates of change depend very much on the choice of time periods. For the full 15 years from 1972 to 1987, the roadside prices for softwood pulpwood have tripled, while kraft pulp and newsprint have increased between three and four times. This suggests that woodlot owners have fallen behind. For the shorter period 1979-87, it seems that woodlot pulp has kept pace. In contrast, the woodlot owners have done better than sawmills in both periods.

Market Structure. There is no large scale freely competitive market for standing timber in any province of Canada. The provincial Crown holds a commanding position in the seven provinces other than the Maritimes. As the single or dominant seller, they constitute a monopoly. And in many timber producing zones there are no more than a handful of major customers. In these cases, attempts are made by a provincial agency to influence roundwood prices by administrative action.

The market structure in the three Maritime provinces is quite different. The largest category of ownership is the small private woodlot. In spite of this, large private land owners and the provincial Crown still dominate the supply side in large areas, and the demand side is often characterized by one or two buyers. Interprovincial trade and export trade in roundwood are not well enough developed to improve the bargaining leverage of woodlot owners.

There is no question that the small woodlot owner is handicapped in the market place because of the market structure. It is in recognition of this fact that a number of provinces have marketing legislation and oversight by an independent board.

It is also apparent that Crown land stumpage, especially for softwood pulpwood under long term license agreements, tends to be underpriced for various reasons. This is believed to have had a depressing effect on the price for wood purchased from woodlot owners. Therefore, an upward adjustment in

Crown stumpage should have the effect of increasing the value of private wood, both on the stump and at roadside.

Other Constraints

Institutional constraints of other kinds play an important part in the market for pulpwood. The more obvious are noted hereunder.

Data Base Deficiencies. As noted earlier, the small woodlot owner is not able to secure accurate and timely information on costs, prices, distribution patterns, export markets, stumpage trends and other data. These are at the fingertips of the larger companies.

Scaling. The scaling is done by the buyer, with infrequent check scaling by the Department. A new Scaling Manual was prepared in 1986 and is almost ready for introduction. It will clear up many of the anomalies and uncertainties which now undermine confidence in the system, including scaling by weight.

Units of Measure. The woodlot owner is faced with widely different measures of roundwood: cords and m^3, both of which may be stacked or solid wood content, thousands of feet board measure, metric tonnes, cords or bone dry units for chips. These will often differ for hardwood and softwood species groups, and changes in units used are not infrequent. A set of conversion factors is included in the new scaling manual and this will provide an official reference for use in the field and in the office.

Association Membership. The inclusion of contractors, companies and other individuals in woodlot owner associations has the effect of diluting their objectives. For example, a contractor who is buying pulp from small owners tends to vote for lower roadside prices, which is contrary to the interests of a woodlot owner. The rapid rise in the group ventures has challenged the traditional woodlot owner associations. More importantly, the split of the NSWOOA into two groups (one in Port Hawkesbury), and a satellite to the NSWOOA in New Glasglow has obviously weakened the voice of the woodlot

owners. Although the latter retain bargaining rights, they have lost the initiative in communications, extension and relations with both industry and government.

Strategic Planning. Very little strategic planning is now being done by or on behalf of the small owners. This kind of activity is maturing in New Brunswick and other provinces. The components of a strategy include markets and marketing, forest renewal and protection, utilization, funding, extension and a timber inventory system.

8.
RECOMMENDATIONS

Introduction

The objective in this chapter is to present the findings as a package rather than in piecemeal fashion. The analyses which support the individual recommendations are covered in the preceding text, at least in abbreviated form.

1. Crown Stumpage

The chief criteria of a sound stumpage framework are **simplicity** and **economy in application, equity, adequacy in revenue generation, and predictability** in their incentive impact on other programs such as silviculture and further industrial expansion.

1.1 Crown land stumpage should be valued in keeping with the following recommended rates ($ 1987).

	$/m^3	$/Cord	$/Mfbm
Softwood			
pulp	4.75	10.49	
sawlogs	8.00		45.30
Hardwood			
pulp	4.00	8.83	
sawlogs	8.00		45.30

Required increases should be implemented in stages with a view to reaching the above rate structure, adjusted for price fluctuations, by 1992.

Prices for other products not shown in the above schedule should be adjusted to reflect equity and relativity.

This new structure will remove any discrimination that may exist among those having access to Crown land timber and provide for a return to government

more in keeping with the costs of renewing the forest. These rates are also more in line with existing rates in New Brunswick. While it is recommended that this new rate structure be fully implemented by 1992, it is recognized that there are legal contracts now in place that must be respected.

1.2 Stumpage rates should be adjusted regularly through the use of a standard formula. It is recommended that Statistics Canada's Industry Selling Price Index for Pulp and Paper Mills and the ISPI for Wood Industries be used as a basis for future adjustments.

This will ensure that the relativity and equity inherent in the new rate structure is preserved. Adjustment on an annual basis is recommended.

1.3 The Province should provide appropriate incentives for forest renewal on Crown land. Wherever possible, the license holder should be encouraged to undertake the required silviculture.

This approach is in keeping with the basis for the proposed new rate structure.

2. Forest Management

The adequacy of forest management was discussed briefly in Chapter 6. As noted there, the Province recently adopted a comprehensive new Forest Policy that clearly articulates forest management objectives.

2.1 The Province should continue with the implementation of the New Forest Policy of 1986 and with the strategic planning, program development and program implementation required to give effect to forest management goals and objectives inherent in this policy.

2.2 Security of funding is a major consideration in ensuring success in the longer term. Accordingly, it is essential that the Province secure a new funding arrangement with the federal government and the private sector before existing agreements expire.

2.3 Commencing with the implementation of a new federal/provincial agreement, industry should bear the cost of forest renewal on its own

lands. Small woodlot owners (up to 2,000 ha or 5,000 acres) should be required to pay at least 10 percent of silviculture costs and 50 percent of access road and boundary line costs.

2.4 The measurable objectives in the silviculture strategy should be further refined, accountability should be clarified, and implementation should be closely monitored to ensure that goals are being achieved in terms of improvements in forest growth and productivity. Results should be reported on annually to the Legislature.

2.5 The present income tax provisions and interpretation bulletins are overly complicated and confusing. Nova Scotia should join with other provinces in formulating a case for income tax reform as it relates to woodlot owners.

3. Market Access

There are several ways to improve the small woodlot owner's access to the market place. The best way to approach the exercise is to make a list of the constraints or handicaps which the owners frequently mention. Among these are lack of knowledge on prices and costs, and the absence of an overall strategy for production and marketing. The recommendations which follow are designed to lessen these constraints.

In the background of course is the relatively powerful market strengths of the three large pulp and paper mills. As long as their market power prevails, a fully competitive market does not exist. The challenge is to provide for a better balance in the market by means such as the Primary Forest Products Marketing Board (PFPMB), group ventures and collective bargaining for pulpwood trees.

3.1 The data base available to woodlot owners is extremely limited. They require historical records and current information on:

- **woodlot and Crown stumpage**
- **access road and harvesting costs**
- **roadside prices**
- **transport costs to mill**
- **lumber, kraft pulp and newsprint prices**
- **export volumes and prices**
- **forest renewal costs**

This information should be available by region for Nova Scotia and in lesser detail for adjacent provinces.

3.2 Strategic planning is almost entirely ignored by woodlot owners in Nova Scotia. This leaves them without the means to pursue important initiatives with both provincial and federal governments. In New Brunswick a planning framework is being implemented with these components:

- computerized inventory analysis
- AAC targets linked to silviculture programs
- utilization standards in the woods
- product mix targets
- market projections
- marketing objectives

It is recommended that the Province examine the new planning model in New Brunswick as a first step in devising one suitable for Nova Scotia woodlot owners.

3.3 Comprehensive information on the motivation and characteristics of woodlot owners is not current. It is recommended that a new woodlot owner survey be conducted soon, possibly as part of the strategic planning process recommended in 3.2 above.

9.
CONCLUDING COMMENTS

This report brings into focus some of the unfinished business identified in the 1986 Forest Policy statement. Implementation of the recommendations in Chapter 8 would honor the commitments made by the Province at that time.

It is also hoped that action on this report will provide a timely clarification of factors which are important to industry. This should pave the way for decisions on new investments in manufacturing. One can only be optimistic about the future of the forest sector in Nova Scotia as implementation proceeds along the lines set out above.

Finally, adoption of this agenda will undoubtedly inspire confidence among forest land owners, by providing concrete assurances of the Province's determination to make forest renewal a cornerstone of their economic development strategy.

Appendix Table 7-1

Comparison of Roadside Price of Pulpwood 1972 - 1987

(dollars per cord)

	Stora			Scott			Bowater	
1972	$15.50			$14.40			$16.00	
1973	16.50	(6)		15.50	(4)		16.00	(3½)
	18.50	(6)		16.00	(2)		18.00	(3½)
				18.50	(6)		20.50	(5)
1974	22.00			18.50	(4)		22.00	(7)
				22.00	(8)		25.00	(5)
1975	23.25			22.00	(5)		25.00	
				23.25	(7)			
1976	25.00			23.25	(9)		25.00	
				25.00	(3)			
1977	25.000			25.00			25.00	
1978	26.00			25.00	(1)		27.00	
				26.00	(11)			
1979	26.00	(9)		26.00	(4)		29.00	
	28.00	(3)		28.00	(8)			
1980	32.00			28.00	(5)		31.00	
				30.00	(7)			
1981	32.00	(6)		30.00	(5)		31.00	(1½)
	36.50	(6)		33.00	(7)		33.00	(4½)
							35.00	(6)
	No. 1	No. 2						
1982	39.50	36.50		36.00			39.00	
1983	41.75	38.75		39.00			39.00	
1984	41.75	38.75		39.00	(10)		39.00	(3)
				41.00	(2)		41.00	(9)
1985	41.75	38.75	(8)	41.00	(10)		43.00	
	47.00	42.00	(4)	42.75	(2)			
1986	47.00	42.00	(9)	42.75			45.00	
	50.00	45.00	(3)					
1987	50.00	45.00		42.75	(3)		47.00	
				45.50	(9)	(ii)		
1988	50.00	45.00	(9)	45.50	(3)			
	52.00	46.50	(3)					

Notes: (i) Deduct $0.95 checkoff to NSLFFP Association.
Deduct $0.10 levy to Primary Forest Products Marketing Board.

(ii) Tree length rate is $41.50.

CONVERSION FACTORS

The following conversion factors have been derived for statistical purposes only. Their use is indicated to allow comparisons between volumes in the publication and for previous years. Totals may not add up due to rounding.

Product	Unit of Common Measure	Volume in Product Cu Ft	Volume of Solid Wood at Roundwood Level Cu.Ft.	m^3
Lumber	1,000 fbm	83.0	176.0	4.983 756 8
Boxwood	1,000 fbm	83.0	176.0	4.983 756 8
Railway Ties	1,000 fbm	83.0	176.0	4.983 756 8
Mine Packs	1,000 fbm	83.0	176.0	4.983 756 8
Staves & Headings	1,000 fbm	83.0	176.0	4.983 756 8
Laths	1,000 pieces	15.6	33.19	0.939 83
Shingles	1 square	2.8	5.96	0.168 768
Residue Chips (from Sawmills)	1 cord unit	85.0	85.0	2.406 928
Round Products				
Rough 4 ft. bolts	1 cord	85.0	85.0	2.406 928
Rough 8 ft. bolts	1 cord	78.0	78.0	2.208 72
Peeled 4 ft. bolts	1 cord	95.0	95.0	2.690 096
Peeled 8 ft. bolts	1 cord	87.17	87.17	2.468 375
Poles & Piling	1 lineal	0.467	0.467	0.013 223 9
Sawlogs	1,000 fbm(scaled)		200.0	5.663 36

Rough 8 ft. bolts	m^3(stacked) ÷ (3.624 56) = cords
Chips	m^3(stacked) ÷ (3.624 56) = cords